Professor: Scott M. LaBrake Ph.D.
Email: labrakes@union.edu
Office Hours: MWF: 9:30^{am} – 10:30^{pm}
T: 12:00^{pm} – 2:00^{pm}
Th: 8:00^{am} – 10:00^{pm}
by appointment
Web: http://minerva.union.edu/labrakes
Text: Fundamentals of Physics 10th Ed. by Haliday, Resnick & Walker

Course: Physics 121 Fall 2022
Phone: 6053 & 6562
Office: ISEC119 & Ainlay072

Course:

This course serves as an introduction to those basic concepts of physics that form the foundation of all the natural sciences. The second of a two-course sequence in Physics this course serves to introduce the student to the fundamental laws of classical electricity and magnetism and are applied to a variety of simple systems. Throughout the course the conservation laws serve as unifying physical principles. Mathematics, a powerful tool in the understanding of natural phenomena, assumes its natural role.

Attendance:

While attendance is not mandatory, it is expected that you will attend class on a regular basis. Material will be covered in a rapid fashion over the fall term; covering about one chapter per week. Past experience dictates that your success in this class is directly proportional to your attending. Attendance at all scheduled exams and labs is mandatory and the instructor does reserve the right to lower a grade due to excessive absences.

Course Grade:

Your course grade will be determined based on a professional judgment of your work on the following scale:

Homework	5%
Quizzes	15%
Two In-Class Exams	30%
Final Exam	30%
Lab	20%

The overall class average at the end of the term will generally be set to a ***B***$^{-}$ letter grade. ***No letter grades are ever assigned to any individual work.*** An attempt will be made after every exam to give you a ***rough idea*** of an ***overall*** grade based on all work completed to date if a grade were to be assigned at that time, based on the class average of a B^{-}.

Homework:

- The homework assigned is representative of the topics that will be highlighted throughout the term. It is strongly advised that you do the suggested homework as noted in class as well as other relevant problems, of your choosing, on the covered topics from the text. ***Variations*** of the assigned and unassigned homework are highly probable candidates for the quizzes and the exams.
- In general, several homework problems will be assigned each night.
- The homework will be assigned and graded using an online homework grading system called the ExpertTA.
- To sign up for the ExpertTA you will need the class link/code; http://goeta.link/USU34NY-DC22CC-2PA. The cost is ~$22.
- Homework assignments will be given on Monday, Wednesday, and Friday and you will have access from $12:00^{pm}$ on the day the assignment is made, and the assignment will close at $5:00^{pm}$ on the next class day. Adjustments may be made throughout the term to this schedule. I will keep you advised.
- No extensions are given on the homework as the close date/time for the homework is not a hard limit. You may still work on the homework after the close day/time. There is a 2% late penalty per day assessed after the close date/time.
- Hints for the homework: I would advise you talk to me, your classmates, the Physics Crisis Center (which is open on Tuesday and Thursday evenings from 7^{pm}-10^{pm} throughout the term), or just ponder the question for a day or so. ***Too often students confuse reading the solution to the problem with their actual understanding of the problem***.

Diagnostic Tests

- Diagnostic tests may be administered at the beginning (pre-test) and end (post-test) of the term to help the department of Physics and Astronomy assess the effectiveness of the course. Your scores on these diagnostic tests will have no effect on your grade for the course.

Quizzes:

- There will be approximately seven (7) quizzes, given at the end of class on Fridays, every week in which there is no exam scheduled. These quizzes will have a maximum length of fifteen (15) minutes. There will be no quiz given in week #1.
- ***The lowest quiz grade will be dropped and therefore no make-up quizzes will be allowed for any reason***.

Labs:

All labs must be attended. Everyone in Physics 121 must complete the laboratory sequence. ***You cannot pass the course without having passed the lab*.** The format for the lab write-ups will be discussed when we have our first laboratory class.

Exams:

- There will be two (2) in-class exams, approximately one (1) hour each, and a cumulative two (2) hour final exam. The hour exams are scheduled for ***Friday, September 30 (week #4)*** and ***Friday, October 28 (week #8)***. Each hour exam will not be cumulative; however, they will be based on your prior knowledge, which includes material from Physics120.
- The hour exams are given on the dates listed and will not be changed for any reason. Please plan accordingly in your other classes.
- ***Emphasis will be placed on demonstration of the ability to apply the concepts and techniques learned to new situations.***
- If you cannot make a scheduled exam, then it is your responsibility to contact the instructor ***in person a minimum of at least 24 hours in advance of the exam. Make-up exams may be granted only in exceptional circumstances, as determined solely by the instructor, and may be oral and will be given at the discretion and convenience of the instructor. You should discuss you intended absence with the instructor well in advance of the exam and provide appropriate documentation to support your absence.***
- The final exam will be cumulative, and no make-up exam will be given for any reason. The date and time of the final is set by the Registrar and will be announced as soon as it is known. ***This is the only time that the final exam will be given***.

Students with Disabilities:

If you have a specific disability that qualifies you for academic accommodations, please provide appropriate documentation from Disability Services within the first week of the term and then we can meet to discuss any necessary special arrangements or needs.

Academic Honesty Issues:

Union College recognizes the need to create an environment of mutual trust as part of its educational mission. Responsible participation in an academic community requires respect for and acknowledgment of the thoughts and work of others, whether expressed in the present or in some distant time and place.
Matriculation at the College is taken to signify implicit agreement with the Academic Honor Code, available at *honorcode.union.edu*. It is each student's responsibility to ensure that submitted work is his or her own and does not involve any form of academic misconduct. Students are expected to ask their course instructors for clarification regarding, but not limited to, collaboration, citations, and plagiarism. Ignorance is not an excuse for breaching academic integrity.
Students are also required ***by the College***, to affix the full Honor Code Affirmation, or the following shortened version, on each item of coursework submitted for grading: "*I affirm that I have carried out my academic endeavors with full academic honesty.*" [Signed, Jane Doe]

Some general honor code comments:

1. For homework I assume that you will be working together on the homework problems. I consider the homework assignments as a pedagogical tool – one for you to learn, apply, and expand upon the techniques studied in class. The effort of learning the material from the homework is your own responsibility. Thus, you can work together with others in the class on the homework, you can ask tutors or other instructors for help, but should write up your own solutions so that you can learn it better and so that you will know how to approach the problems on the quizzes and exams. You should indicate on the assignment which problems you had help with and from whom (instructor, tutor, etc.)

2. For quizzes and exams, you are not allowed to work together. The quizzes and exams are closed book and you are only allowed to use a calculator (specifically one that is not associated with any type of portable communication device) and the instructor provided equation sheet.

Covid-19

If you are quarantined or isolated for Covid, you are expected to continue engagement with the course as normal, provided you are feeling well. Given the nature of the classroom setup, there may or may not be an opportunity for zoom and zoom will only be used if you test positive for Covid. If you test positive for Covid, please contact Wicker Wellness Center immediately. I will be notified by the Dean of Students Office and will work with you to adjust deadlines as necessary and needed.

Tentative Schedule

Week	Material
1	Electric Force and Fields
2	Classification of materials and charge distribution
3	E Field due to continuous charge distribution and Electric Potential
4	Potential difference and Magnetic Field
5	Magnetic dipole and microscopic view of current
6	Circuits and capacitors
7	Ohm’s Law, RC circuits, magnetic force on a charge
8	Lorentz Force, Hall effect, motional emf and Gauss’s Law
9	Ampere’s Law and Faraday’s Law
10	Inductance and Maxwell’s equations

Notes:

1. This course is heavily dependent on geometry, as well as some algebra and trigonometry and calculus. It is expected that the student is familiar with these mathematical topics. Calculus will be used. You will need to bring a calculator (one that does basic mathematics, like trigonometry and logarithms, is fine) to class every day. ***I don't generally have any extra calculators and you will not be allowed to share calculators during quizzes or exams.***

2. Please realize that the instructor is human, just as you the student and I will occasionally make mistakes. To that end, on exams & quizzes if I have made a mistake, please bring it to my attention and I will correct it. However, if you are just seeking to get more points back without any substantive argument as to why you disserve the points, I will be happy to re-grade the entire quiz/exam. This may result in raising or lowering the present grade on the quiz/exam.

3. All grading must be contested within twenty-four (24) hours after the original assignment was returned, whether or not you were in class to receive the assignment back. ***Contestations must be accompanied by a full written explanation of how your solution was incorrectly penalized.*** I will not look at anyone's appeal without a written explanation. I will return the appeal and the decision of points after 24 hours. I will only consider grade changes during this twenty-four (24) hour period. This does not apply to arithmetic errors.

4. This course is going to be very demanding on you. It will be one of the most challenging courses you will take at Union College. You cannot sit idly by and assume that you know or will learn the material the night before the quiz/exam. It will require a lot of work on your part, as well as mine. If we work together, I hope, by the end of the term the beauty and applicability of physics will be evident in your everyday lives.

5. This class may be numbered as a 100-level class. It is by no means a trivial introduction to the study of physics. Physics underlies every other subject and as such its importance cannot be trivialized. This is a very demanding class and cannot be emphasized enough.

6. I realize that in this technological age people without computers, high-definition TV, cell phones are in the minority. For those of you that have any of these sorts of devices and need to bring them to class with you, please turn them off (or at lease put them on vibrate.)

7. For exams and quizzes, cell phones will not be allowed anywhere on your person. Please shut them off and hide them away in your bags. Quizzes and exams may be removed from you for using a cell phone.

8. Please know that I am aware that the homework solutions do exist out in the universe, and you can get copies of them should you choose. I would strongly advise you not use ill-gotten homework solutions as this will not prepare you for the exams and quizzes and will leave you with a feeling of why can I not do the quiz and exam problems.